FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

December 9 to December 15, 2012 (Week 50)

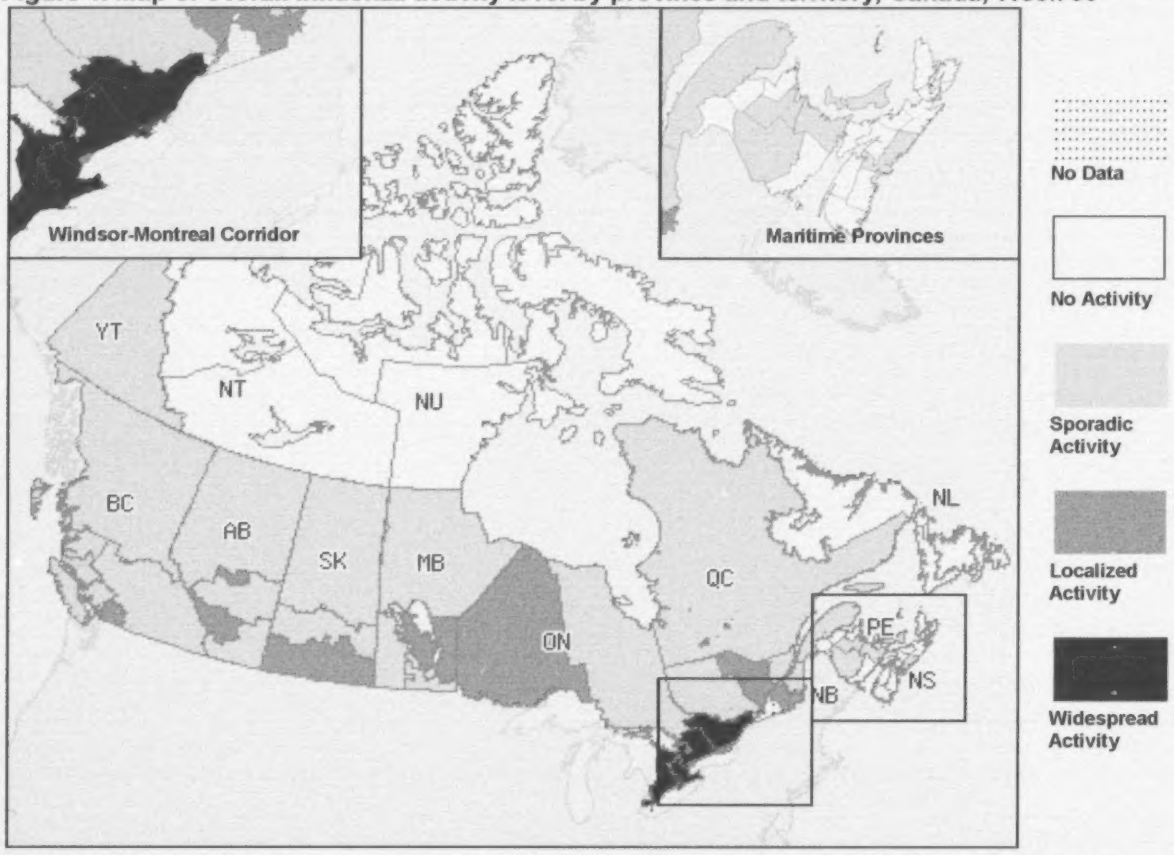
Overall Influenza Summary

- Influenza activity in Canada continued to increase in week 50; four regions reported widespread activity, and the majority of regions reported influenza circulation.
- A total of 1502 laboratory detections of influenza were reported, of which 96.7% were for influenza A viruses, predominantly A(H3N2).
- Thirty-one influenza outbreaks were reported: 24 in long-term-care facilities, 4 in hospitals and 3 in other facilities.
- Thirty-three paediatric influenza-associated hospitalizations were reported through the IMPACT network, all but one with influenza A
- Seventy-three hospitalizations with three deaths in adults ≥20 years of age were reported through Aggregate surveillance, all with influenza A.
- The ILI consultation rate increased compared to the previous week and is within the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

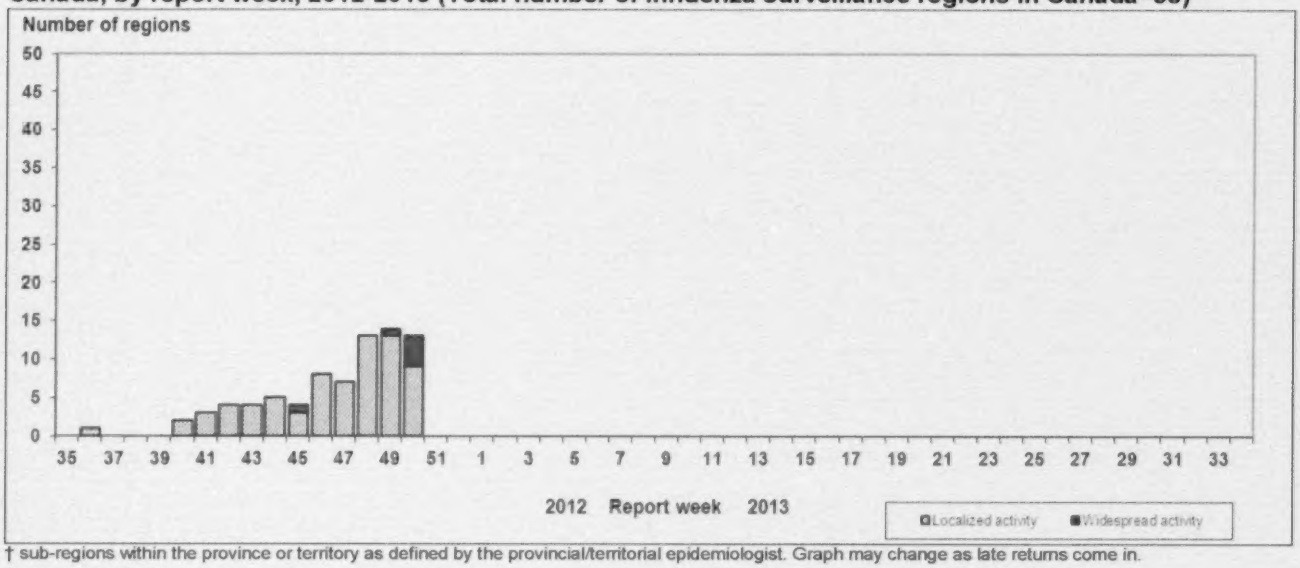
In week 50, the majority of regions reported influenza activity with four regions [in ON] reporting widespread influenza activity, nine regions [in BC(1), AB(2), SK(1), MB(1), ON(2), QC(2)] reporting localized activity, and 23 regions reporting sporadic activity [in all provinces and territories except NL, NT and NU] (Figures 1 and 2). Thirty-one new influenza outbreaks were reported in week 50: 24 in long-term-care facilities [in BC(1), AB(3), SK(3), MB(1), ON(13), QC(2) and NS(1)], four in hospitals [in AB(1) and ON(3)], and three in other facilities [in ON] (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 50



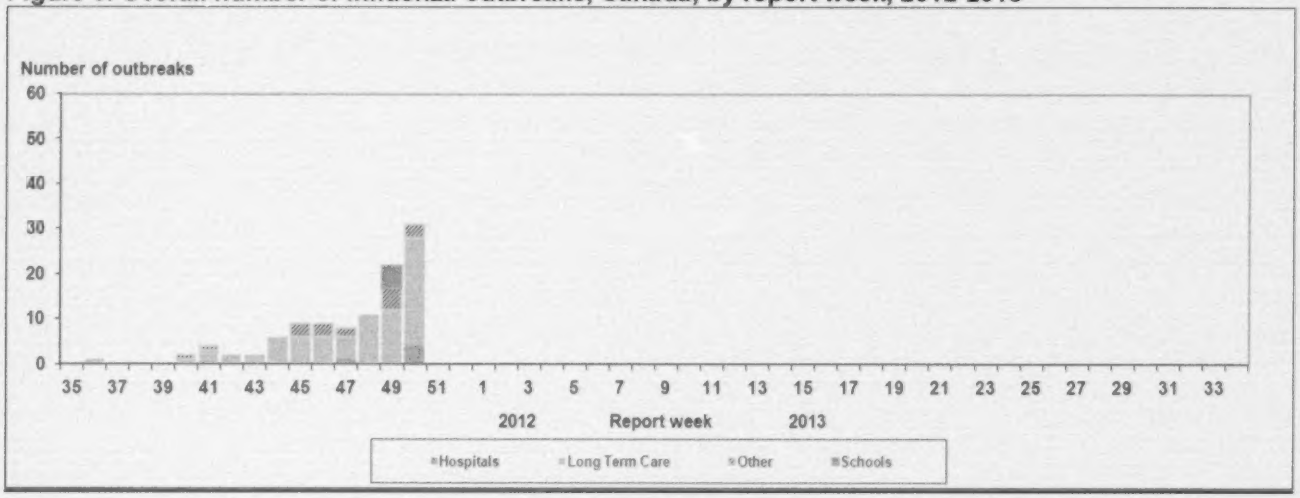
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from 18.2% in week 49 to 24.2% in week 50 (Figure 4). Among the influenza viruses detected this week (n=1502), 96.7% were positive for influenza A viruses [of which 36.9% were A(H3), 1.2% were A(H1N1)pdm09, and 61.9% were A(unsubtyped)]; and 3.3% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 96.3% influenza A [49.5% A(H3), 1.7% A(H1N1)pdm09 and 48.8% A(unsubtyped)] and 3.7% influenza B (Table 1).

Detailed information on age and type/subtype was received for 3149 cases to date this season (Table 2). The proportions of cases by age group were as follows: 14.0% were < 5 years; 12.4% were between 5-19 years; 18.6% were between 20-44 years; 15.9% were between 45-64 years of age; 39.0% were ≥ 65 years.

The percentage of tests positive for RSV is stable at 8.7%. The percentage positive for rhinovirus continued to decline from 9.8% to 6.6%. Parainfluenza and coronavirus detections declined slightly (from 4.0% to 3.1% and from 4.2% to 3.7%, respectively). Other percentages of positive tests remained low: adenovirus 1.4%; hMPV 1.0% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	December 9 to December 15, 2012						Cumulative (August 26, 2012 to December 15, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	19	0	19	0	0	0	112	0	106	0	6	8
AB	146	0	114	3	29	16	564	0	498	15	51	40
SK	46	0	34	2	10	0	149	0	123	3	23	8
MB	3	0	3	0	0	4	21	0	20	0	1	7
ON	465	0	281	12	172	8	1166	0	819	37	310	27
QC	762	0	81	0	681	21	1384	0	117	0	1267	42
NB	3	0	1	1	1	0	11	0	3	4	4	0
NS	1	0	0	0	1	0	1	0	0	0	1	0
PE	3	0	3	0	0	0	7	0	7	0	0	0
NL	5	0	0	0	5	0	10	0	3	0	7	0
Canada	**1453**	**0**	**536**	**18**	**899**	**49**	**3425**	**0**	**1696**	**59**	**1670**	**132**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (December 9 to December 15, 2012)					Cumulative (Aug. 26, 2012 to December 15, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	140	0	47	93	7	420	14	221	185	20
5-19	111	1	46	64	10	366	3	245	118	26
20-44	182	1	59	122	9	563	16	294	253	23
45-64	154	0	52	102	2	481	9	254	218	21
65+	464	2	131	331	17	1207	8	549	650	22
Unknown	2	0	2	0	0	10	1	8	1	0
Total	**1053**	**4**	**337**	**712**	**45**	**3047**	**51**	**1571**	**1425**	**112**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

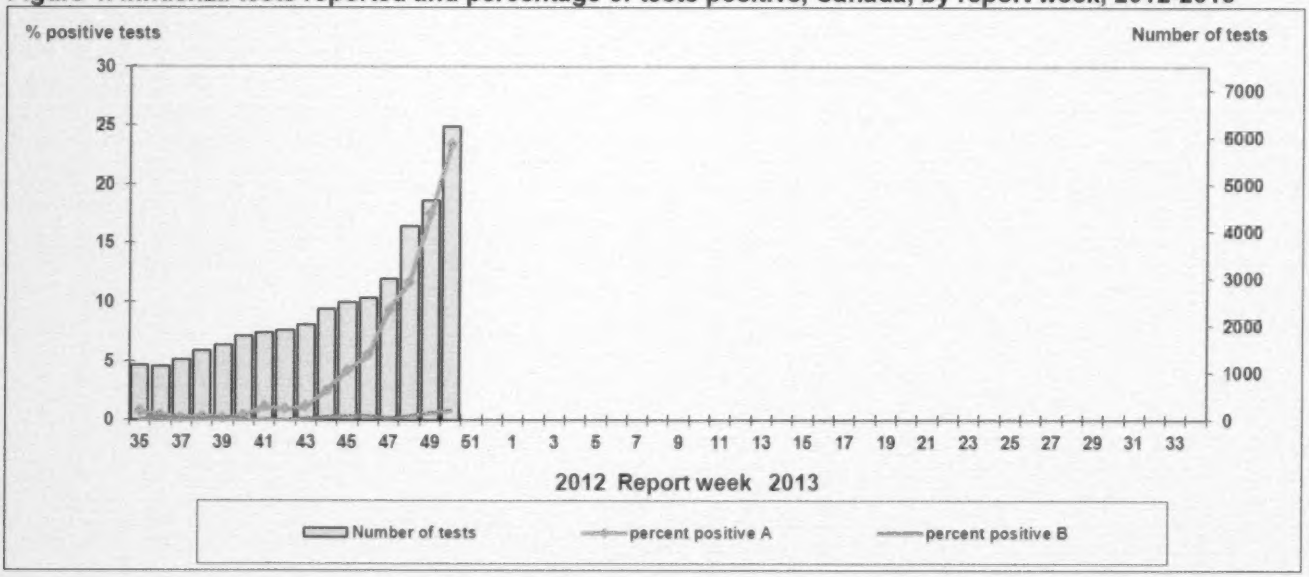
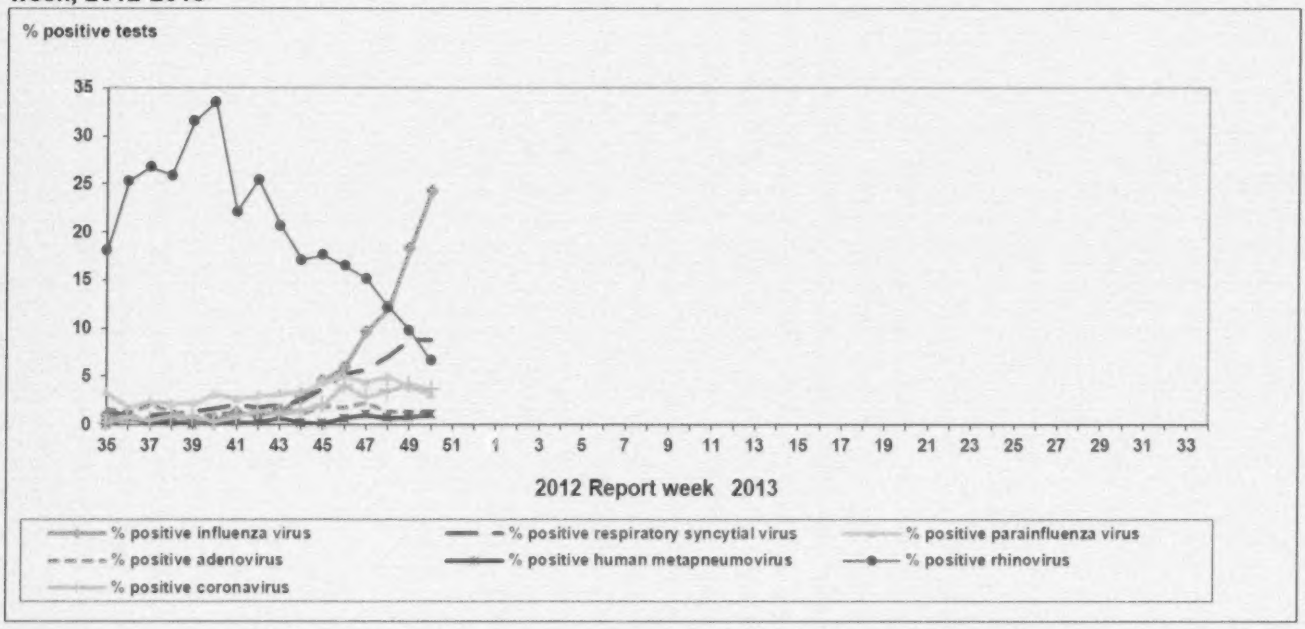


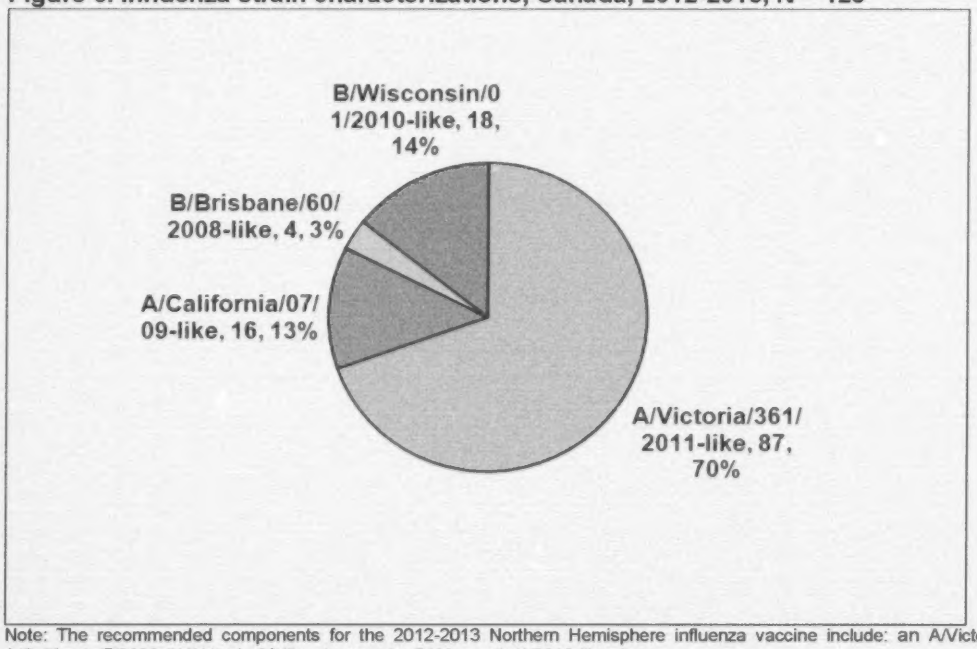
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 125 influenza viruses [87 A(H3N2), 16 A(H1N1)pdm09 , and 22 influenza B]. The 87 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 16 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 18 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and four were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 125



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

Since the beginning of the season, NML has tested 104 influenza viruses for resistance to oseltamivir, and 101 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 132 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

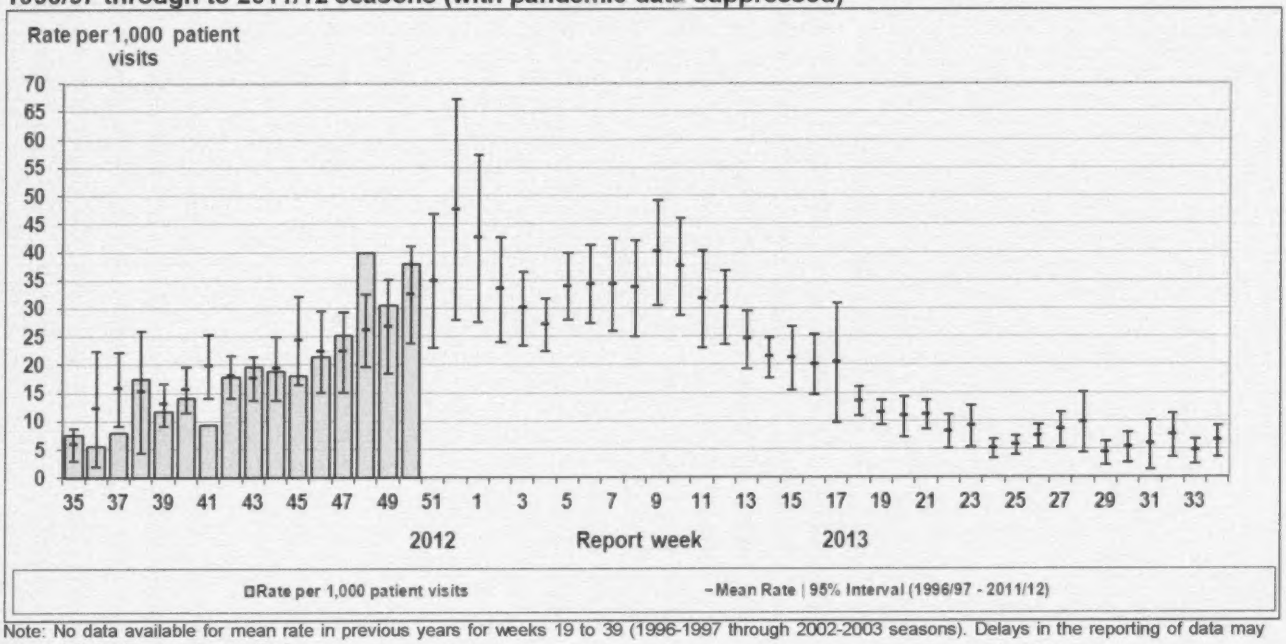
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	73	0	70	0	122	122 (100%)
A (H1N1)	13	0	13	0	10	10
B	18	0	18	0	NA*	NA*
TOTAL	104	0	101	0	132	132 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 50 increased compared to the previous week: from 30.5 to 37.9 ILI consultations per 1,000 patient visits, which is within the expected level for this time of year (Figure 7). The highest consultation rates were observed in children 5-19 years of age (80.1/1,000) followed by children <5 years of age (72.7/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate continued to increase in week 50 from 71.6 to 102.2 antiviral prescriptions per 100,000 new prescriptions dispensed. The current rate of 102.2/100,000 is in keeping with the current percentage of positive laboratory tests for influenza (24.2%). Rates of 50-100/100,000 were observed during the peak period during the 2011-12 influenza season, when the percentage of positive influenza tests was between 18%-24% (data from April 2011 to present). In week 50, the antiviral prescription rate increased in all age categories, and was highest among children and seniors at 129.6/100,000 and 129.9/100,000, respectively.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 50, 33 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network: three from BC, six from AB, two from SK, two from MB, eight from ON, and twelve from QC. Among the 32 cases identified with influenza A, 27 were A(unsubtyped) and 5 were A(H3N2). One case was identified with influenza B. The age distribution is as follows: six under 6 months of age, five between 6-23 months, ten aged 2-4 years, eight aged 5-9 years, and four aged 10-16 years. Two ICU admissions were reported this week, both in children 10-16 years of age with influenza A.

Since the start of the 2012-13 season, a total of 91 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 87 (95.6%) with influenza A [of which 17 (19.5%) were A(H3N2) and 70 (80.5%) were A(unsubtyped)], and four (4.4%) with influenza B. The distribution of cases by age group is as follows: 16 (17.6%) <6 months of age, 19 (20.9%) age 6-23 months, 25 (27.5%) age 2-4 years, 19 (20.9%) age 5-9 years, and 12 (13.2%) age 10-16 years. Seven of the 91 cases (7.7%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 50, 99 laboratory confirmed influenza associated hospitalizations were reported [AB(13), MB(1), ON(84), PE(1)]. One was influenza B, and 98 were influenza A. Of the influenza A-associated hospitalizations, 50% (49/98) were A(H3N2), 1% (1/98) were A(H1N1)pdm09 and the remaining 49% (48/98) were A(unsubtyped). Almost half of the cases (42.9% 42/98) reported were aged 65+ and 16.3% (16/98) were aged between 45-64 years. Of the 14 cases with available data, one was admitted to the Intensive Care Unit (ICU). Three deaths were reported, all in influenza A cases: one case aged 20-44 years with A(H3); and 2 cases aged ≥65 years, one with A(H3) and the other A(unsubtyped).

To date this season, 324 influenza-associated hospitalizations have been reported. The majority of cases have been influenza A (97.5%, 316/324). Approximately half of the cases (49.4%, 159/322) were ≥ 65 years of age. Of the 180 influenza A hospitalizations for which subtype was available, 94.4% (170/180) were due to A(H3) and 5.6% (10/180) were due to influenza A(H1N1)pdm09. Among the 86 cases with available data, there have been 10 hospitalizations for which admission to ICU was required, four (40%) were persons ≥ 65 years of age. To date this season, 18 deaths have been reported: all in influenza A cases (9 A(H3); 9 A(unsubtyped)).

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since December 7, 2012.
World Health Organization influenza update

United States: During week 50, influenza activity increased in the United States. Twenty-nine states reported widespread influenza activity, 12 states reported regional influenza activity, and the District of Columbia and 5 states reported local activity. The national percentage of outpatient visits for ILI is 3.2% which is above the national baseline of 2.2%. The proportion of tests positive for influenza viruses decreased slightly in week 50 (28.3%) compared to the previous week. Of the positive influenza detections, 78.9% were positive for influenza A viruses. Of the 1209 influenza A viruses for which subtype information was available, 98.2% were A(H3) and 1.8% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 351 influenza viruses. Among influenza A viruses, 226 (95.8%) were A/Victoria/361/2011-like, two of which showed reduced titers; and 10 (4.2%) A/California/7/2009-like. Among influenza B viruses, 79 (68.7%) B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 36 (31.3%) to the B/Victoria lineage. Two new influenza-associated paediatric deaths, associated with influenza A, were reported during week 50. Eight cases have been reported to date this season (six with influenza A and two with influenza B).
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 50, influenza activity in Europe remained low although an increasing number of countries across the region reported sporadic co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B. There is no clear predominance of influenza A or B in the region. Since week 40, 1843 specimens of influenza viruses have been typed: 58% were influenza A and 42% were influenza B. Among the 669 influenza A viruses for which subtype information was available, 52% were A(H3) and 48% were A(H1N1)pdm09. The number of sentinel specimens tested and the proportion positive for influenza have increased over the past two weeks (from 6% to 15.8%), indicating the start of the influenza season. Two hospitalizations for severe acute respiratory illness (SARI) related to influenza [one A, one B] were reported this week.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
Two new human cases of avian influenza have been reported since the last WHO report of 5 November 2012, one from Egypt and one fatal case from Indonesia. Both cases were in children under 5 years of age, and both had exposure to poultry. An increase in circulation of H5N1 influenza in poultry is expected at this time of year, and sporadic human cases are within the expected range. No sustained human to human transmission was reported.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported this week.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.